

Chapter 2: Fault isolation

This chapter helps you to identify problems that might occur while using the Meridian IVR Release 2.0/I system and related devices.

The procedures described in this chapter may produce results requiring a specific maintenance procedure. In these cases, you are directed to a specific procedure in Chapter 4, “Maintenance activities”.

If a fault persists, contact your Nortel service representative.

Gathering information

To diagnose a system failure effectively, you should determine which processes were active at the time of the failure.

Once the system has been reset, the state of the system at the time of the failure is lost.

You can check the status of all Meridian IVR processes by issuing the following UNIX command:

```
ps -ef | grep '\./'
```

With this command, ps displays the process table, and grep limits the display to those Meridian IVR processes with UNIX path names with the special character ./.

Meridian IVR requires certain processes to be running at all times. Other Meridian IVR processes may run but are not considered essential.

The following table lists the processes for Meridian IVR:

Table 2-1
Meridian IVR processes

Process name	Process description
gui_main	Main fax gui
gui_sys	Fax system administration
gui_mdm	Fax modem administration
gui_mon	Fax modem monitor
gui_cal	Call back administration
gui_log	OM and log administration
gui_ve	View and edit administration
frusr	Fax user function
fax_server	Fax server process
log_server	Log server process
cal_server	Call back server process
ses_server	One point for each channel
gs	PostScript conversion
img_create	Image create process
cal_submit	Call back submit process
img_print	Image print process
dcat	Allows the dynamic mixture of variable and fixed data from files and text buffers as part of a Meridian IVR call flow.
scm	System configuration manager
sai	System application interface
xai	System monitor
sde	System database editor

Table 2-1
Meridian IVR processes (Continued)

Process name	Process description
xae	Graphical application editor
xconsole	Main error console
xclock	Clock
mwm	X manager for IVR
passwd	Password change process
xbup	Backup and restore utility
ntcu	MMconsole process
accdiag	Access diagnostic process
uif	IVR main gui process
mcm (parent)	Meridian channel manager
mcm (child)	Meridian channel manager
vrtd (parent 1)	Voicetek run-time daemon
vrtd (parent 2)	Voicetek run-time daemon
vrtd (child x 4)	Voicetek run-time daemon
psm	Protocol state machine
ueh	User error handler
vtk	VTk request router
vip	VTk interface process
vrn	VTk resource manager
cli	Call logic interpreter
dbb	Voicetek database server
qdb	Query DBMS server
csc	Call scheduler

Table 2-1
Meridian IVR processes (Continued)

Process name	Process description
sad	System administration daemon
vft	File transfer
pmg	Pull manager
trs	Host connectivity session manager
trsl	Trs log process
msg (multi)	Messaging process
trsc	TRS protocol handling process
cli_s	Call logic process
ust	User statistic process
lh	Access link handler
lhrx	Link handler
nedit	Report writer
sri_disp	Report writer related process
frep	Report writer related process
vpe	Voice prompt editor
sam	System application monitor
csnap	Curses based snap
rstat	Reset statistic
sched	Schedule application process
devent	Display sched application
qds	Query DBMS server
xdx	Database process
Xpowerchute	UPS gui interface

Table 2-1
Meridian IVR processes (Continued)

Process name	Process description
_xpwrchute	UPS gui interface
_upsd	UPS daemon
_upsd	UPS daemon
agent	Apertus agent process
cdmserver	Apertus process
executive	Apertus software daemon
watchdog	Apertus software daemon
express	Express manager process
CM	Configuration utility process
CFG	Control communications and diagnostics process
End	

Examining interprocess communication queues

The interprocess communication (IPC) queues are used by Meridian IVR to let its processes communicate with each other. If these processes do not function properly, the system will fail. To view the queues in the system, issue the following command:

```
ipcs -a
```

This command displays the last sender, the last receiver, and the number of bytes in each queue.

During normal operation, the queues contain zero bytes because they are being read from and emptied constantly.

If the queues are not empty, one process is no longer reading information from the queues. Since there are limited system resources for each individual queue and for all combined queues, the system will fail. You must determine which process has stopped.

Meridian IVR log files

The following error logs are found in Meridian IVR:

- /u/ivr/log.d/event.log
Transaction log file
- /u/ivr/log.d/start.log
Startup log file
- /u/ivr/log.d/xconsole.log
Xconsole log file
- /u/fax/log/yyyymdd.log
Fax event log
- /u/fax/log/cal_server.err
Fax error log
- /u/fax/log/fax_server.err
Fax error log
- /u/fax/log/log_server.err
Fax error log
- /u/admin/accdiag.log
ACCESS diagnostics log
- /u/ivr/vrs/exe/accdiag.log
ACCESS diagnostics log
- /u/ivr/vrs/exe/lhn.log
Link handler log file
- /u/ivr/vrs/exe/lhn_old.log
Old (previous) link handler log file
- /u/ivr/vrs/log.d/start.log
VRS start log (logs last start time of VRS)
- /u/ivr/vrs/log.d/event.log
VRS event log

Examining the error logs

The error logs contained in */u/ivr/log.d/event.log* (viewing the Reports Generator, this file is referred to as the Transaction log file) and */u/ivr/vrs/log.d/event.log* are important sources of system information. These logs report error messages for each process which are used for debugging applications and system failures.

Use the **more** command to examine the contents of the error logs.

Logs are circular files of 500 lines in length. If any logs contain pertinent information, save the file to a unique name.

Note: A circular file has a set length. When messages exceed this length, they are written at the beginning of the file and, thus, overwrite the earliest messages in the file.

Examining the /tmp directory

The */tmp* directory contains information about each process in the system. Each process has a file called *pid.msg.log* in the */tmp* directory.

Process shutdown information

Each file indicates the last state of the process which created it. These files can often indicate which process shutdown abnormally.

Examining the Meridian IVR console window

The Meridian IVR console window displays Meridian IVR status errors at start-up and shutdown.

These messages are also written to a file.

Security problems are also displayed in this console window.

Reading Transaction Log Report self-diagnostic messages

Whenever Meridian IVR is powered up, it performs self-diagnostics and then reports the results of these diagnostics to the system console.

One item is Message #102 which reports a CCC1 or a CCC0 diagnostic reply in the Transaction Log Report.

CCC0 - Fatal errors

If Meridian IVR has fatal errors, diagnostics report them in a CCC0 reply. (Fatal errors are errors that prevent Meridian IVR from running.)

CCC1 - Non-fatal errors

If Meridian IVR has non-fatal errors, diagnostics report them with one or more CCC1 replies.

To read CCC1 and CCC0 replies, go to the Transaction Log Report and look at every Message #102 that has been added to the report since the last diagnostics were performed.

Meridian Access link setup problem

If you suspect a Meridian Access link setup problem, you can check Meridian Access link settings by following the procedure below.

Procedure 2-1

Checking Meridian Access link settings

- 1 Check that Meridian Access link is enabled on Meridian Mail by going to the Meridian Mail menu and selecting General System Administration.
- 2 Select General System Options. If the Meridian link is enabled, it is listed in the Available Features display.
- 3 Check that the Access link cable is connected to data port MMLINK.
- 4 View settings of the hardware database by selecting Hardware Administration on the Meridian Mail menu.
- 5 Select Data Port Configuration to display a list of configured system data ports. One data port should appear as MMLINK.

MMLINK must be set to the proper baud rate (for example, 9600 for Meridian Mail 8) and a specific data port location.

For more information on how to establish the Meridian Access link with IVR, see the *Meridian IVR Installation Guide* (NTP 555-9001-210).

Troubleshooting operational problems

This section provides general guidelines for troubleshooting operational problems in the Meridian IVR system.

If you cannot correct the problem, contact your Nortel service representative.

Failure to synchronize the Meridian Access link

The Meridian Access link manages communications between Meridian IVR and Meridian Mail.

Use the MM Link Diagnostics menu on your terminal to check that communications are synchronized and running properly. This menu displays link handler status.

If the *Link not synchronized* message appears, do the following:

- 1 Check if the Meridian Access link is installed using the tools level in Meridian Mail and the MMverify command (option 13, for example, Link Diagnostics).
- 2 Check that the EC/RSM utility card is seated properly within the Meridian Mail system.
- 3 Check that the fanout cable at the RSM utility card is connected properly.
- 4 Check the I/O panel cabling.
- 5 Check that the Digiboard cable is connected to the first port of the RSM/EC fanout cable.
- 6 If the fanout cable is connected to the wrong RSM/EC utility port, you might have to reset Meridian Mail to synchronize the Meridian Mail link.

An application cannot run

If the Meridian IVR core software is running but an application is not executing, check system configuration parameters using the system configuration interface.

Procedure 2-2

Checking system configuration parameters

- 1 Check the mailbox id and the channel mailbox password. Correct if necessary.
- 2 Start Meridian IVR, and, through the system administration menu, display the system monitor administration window.
- 3 Press the Node Toggle Button to display channel activity.
 - If Meridian Mail channels are all gray, check that the Meridian Mail link is connected and synchronized.
 - If the number of configured channels exceeds the number of defined channels, only the defined channels will work.
 - The number of channels on the screen should match the number of channels purchased or defined for the system.
- 4 Check the log files and examine any error messages.
- 5 On the system administration menu, select system configuration to display the system configuration screen. Check the number of configured channels.

The system configuration screen shows the Number of Nodes and Maximum # of System Wide Prompts.

The number of nodes should always be 1.

Meridian IVR cannot run

If the Meridian IVR core software is not running check the following error logs:

- /u/ivr/log.d/event.log
- /u/ivr/log.d/xconsole.log

If you cannot correct the problem, contact your Nortel service representative.

A call cannot reach Meridian IVR

If a call cannot reach a Meridian IVR channel, check the system configuration on Meridian IVR and on Meridian Mail.

If the configuration has changed, reset Meridian IVR as described in the *Meridian IVR Installation Guide* (NTP 555-9001-210).

Failure to access the voice prompt mailbox

If Meridian IVR is running and all of its channels are defined as dedicated, then the VPE will not have a free channel for logging in to the voice prompt mailbox. The VPE needs at least one unused shared channel on the Meridian Mail System to access the mailbox.

To check if the VPE has a shared channel, follow these steps:



CAUTION

Do not stop Meridian IVR during the recording of voice prompts because this causes the Meridian Mail link to stop. When the link is stopped, changes made during the VPE session cannot be saved.

Check that the mailbox which the VPE is trying to access is available and that the password being used is correct.

Meridian Mail console window not available

An optional Meridian Mail console window can be displayed on the SVGA monitor using special cabling. If no Meridian Mail console window appears on the SVGA monitor, check that the cabling between the Meridian Mail I/O panel and the Meridian IVR panel is the correct cable. Refer to the *Meridian IVR Installation Guide* (NTP 555-9001-210).

The Meridian Mail console baud rate must be 2400 bps to work properly with IVR.

Contact the Nortel service representative to correct this problem.